Lincoln County New Mexico

Community Wildfire Protection Plan

2014 Update

Prepared For:
Lincoln County
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Carrizozo, NM 88301

Prepared by
The South Central Mountain
Resource Conservation & Development Council, Inc.
August 30, 2014

In Cooperation With:
Lincoln County
The Greater Ruidoso Wildland Urban Interface Working Group
EMNRD – Forestry Division
Lincoln National Forest
The Village of Ruidoso
Village of Capitan
Little Bear Forest Reform Coalition
New Mexico State Land Office
Bureau of Land Management
Bureau of Indian Affairs

2014 Lincoln County, New Mexico

Community Wildfire Protection Plan

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LINCOLN COUNTY
COMMUNITY WILDFIRE PROTECTION PLAN

We the undersigned approve and support the Lincoln County Community Wildfire Protection Plan

Jackie Powell, Chairman, Lincoln County Commission — Date: 9/16/14

Preston Stone, Vice-Chair, Lincoln County Commission — Date: 9/16/14

Mark Doth, County Commissioner — Date: 9/16/14

Dallas Draper, County Commissioner — Date: 9/16/14

Kathryn Minter, County Commissioner — Date: 9/16/14

LINCOLN COUNTY CWPP
COMMUNITY WILDFIRE PROTECTION PLAN

We the undersigned approve and support the Lincoln County Community Wildfire Protection Plan.

Village of Ruidoso

Not present at the October 28, 2014 Regular Council Meeting
Tom Battin, Mayor, Village of Ruidoso — Date:

Lynn Crawford, Councilor — Date: 10/28/2014

Rafael Salas, Councilor — Date: 10/28/2014
Mayor Pro Tem

Joseph Eby, Councilor — Date: 10-28-2014

Tim Coughlin, Councilor — Date: 10/28/14

Not present at the October 28, 2014 Regular Council Meeting
John Cornelius, Councilor — Date:

Joe R. Gomez, Councilor — Date: 10/28/14

VILLAGE OF RUIDOSO SEAL NEW MEXICO

ATTEST:

Irma Devine, Village Clerk

LINCOLN COUNTY
COMMUNITY WILDFIRE PROTECTION PLAN

We the undersigned approve and support the Lincoln County Community Wildfire Protection Plan.

Cooperating Agencies

David Warnack, District Ranger, Smokey Bear Ranger District — Date: 9/23/2014

Lynn Lovelace, EMNRD Forestry Division, Capitan District — Date: 9/23/14
Capitan District Forester

Joe Kenmore, Director — Date: 9/23/14
Lincoln County Emergency Services

Spencer Baldwin, Coordinator — Date: 9-23-14
Lincoln County Emergency Services

Dick Cooke, Chairman — Date: 9/23/2014
Greater Ruidoso Area WUI Working Group

Harlan Vincent, Fire Chief — Date: 11/4/14
Village of Ruidoso

Bureau of Indian Affairs, Superintendent — Date: 10/14/2014
Charles Riley

1. Introduction

This document serves to provide an update for both the Lincoln County and Greater Ruidoso Area (GRA) Community Wildfire Protection Plans (CWPP). Its goal is to be a useful, living document that can help the communities guide wildfire mitigation efforts and be updated as needed. This protection plan provides a framework to address wildfire risk in Lincoln County. While this CWPP is a stand-alone document, our goal is to encourage and provide communities within the county with the ability develop more specific plans to address localized fire risk.

CWPP's are not legal documents, and this update should be viewed in conjunction with the previous two CWPP documents. Both CWPPs, although written several years ago are important landmark documents and nothing in this document is designed to replace or contradict either plan.

Since the GRA CWPP was written in 2004 and the Lincoln County CWPP was written in 2008, much has changed in the area. Fuel mitigation projects have treated over 32,000 acres on both public and private land within our Wildland Urban interface (WUI), and there have been several large fires that have burned homes and drastically changed fuel conditions and community priorities. This document will update certain components of the two CWPPs to reflect changing conditions, additional knowledge, recent community mitigation efforts, and updated priorities. Applicable portions of previous CWPP's have been incorporated into this document as they provide a strong foundation.

The Greater Ruidoso Area CWPP was created in 2004 and was one of first CWPPs developed in New Mexico. The document is evidence of a community beginning to work together to address wildfire risk and mitigation. Compared to later CWPP's (including the Lincoln County CWPP) the document provides basic information about a community addressing the common wildfire hazard. While the document does not explicitly address particular areas or communities, the "Ruidoso WUI project boundary" is represented in the map which outlines an area of increased wildfire risk. This area is still at high risk for wildfire and is the primary WUI within the county. The document includes the following;

- Map of completed fuels treatments,
- Silvicultural treatment objectives,
- Statement on structural ignitability, recommending the use of structural hazard rating forms as noted in the international WUI fire code,
- Signatures from the various agencies and government officials,
- List of community stakeholders and contact information of GRAWUI working group members,
- Copies of village thinning ordinances and fuel standards (multiple),
- Example structure fire hazard rating form, Firewise checklist,
- Glossary of terms.

The Lincoln County CWPP was created in 2008. The work was contracted to Walsh Engineering of Boulder, Colorado. The document includes analysis of multiple WUI communities within Lincoln County but exempts both Ruidoso and Ruidoso Downs because of their inclusion in the previous CWPP. This document is more comprehensive then the GRA CWPP and includes copious amounts of generalized wildfire/WUI research, and background information. It also uses course scale GIS data to document fuel conditions. The document provides general recommendations to mitigate fire risk but does not include a detailed plan. The document is outlined as follows:

- Introduction
- Wildland Fire Management Primer
- CWPP Assessment Area Profile
- Wildfire Risk and Hazard Assessment
- Wildfire Mitigation Plan
- Emergency Operations
- CWPP Monitoring and Evaluation
- Bibliography

2. Goals and Objectives

The Goals of the 2014 Lincoln County Community Wildfire protection plan are to reduce the risk of wildfires to the residents, firefighters, property, and natural resources of Lincoln County. The document represents a collaborative effort of multiple agencies groups, and stakeholders who have a shared responsibility to reduce the wildfire hazard in our community. This update will take previous assessments and build on those to develop a document that will guide future community protection and mitigation efforts. The document provides a framework for the community to show how we have addressed wildfire risk and what still needs to be accomplished. Communities and subdivisions are invited to provide more detailed input on specific initiatives and projects at a local level. The objectives of the Lincoln County Community Wildfire Protection Plan are;

- To educate residents regarding wildfire risk and shared responsibility.
- To reduce fuel loading around our homes, infrastructure, communities, and forests.
- To decrease structural ignitibility of our homes, business and buildings.
- To manage forested areas to promote forest health and foster resilience.
- To identify areas where landowners and land management agencies can work collaboratively.

3. Core Team Directory

The Greater Ruidoso Area Working group is the most active interagency group in Lincoln County concerned with fuels reduction and wildfire risk. The CWPP update was discussed at

multiple GRAWUI working group meetings, which are open to the public, and members of the group were asked to participate in the process to update the CWPP. The core group was self-selected from the working group and represents a cross-section of our community, with individuals from various backgrounds and interests. Below is an alphabetized list of the members.

Core Team Directory

	Name	Agency	Title
1	Roger Allen Spencer	LBFRC/ Bio Grind	
2	Baldwin	LC Fire and emergency services	Coordinator
3	Mike Caggiano	SCMRCD	Community Forester
4	Dick Cooke	Village of Ruidoso Forestry	Village Forester
5	Bela Harrington	BIA	Fuels Planner
6	Lynn Lovelace	NM State Forestry	District Forester
7	Daniel Ray	USFS – Smokey Bear District	Fuels Specialist
8	Mary Ann Russ Anthony	LBFRC	Director
9	Sanchez	USFS – Smokey Bear District	Fire Management Officer
10	James Savage	BLM	
11	Frank Silva	NM State Forestry	Timber Management Officer
12	Harlan Vincent	Village of Ruidoso Fire	Fire Chief
13	Mary Weaver	LBFRC	Director

4. Area Description

Lincoln County is located in south-central New Mexico. The county has an area of 4,831 square miles with a population of 20,497 (2010 census). Much of Lincoln County is a high desert, with the White and Sacramento mountains encompassing the southern portion of the county. This CWPP includes the entire county with an emphasis on areas prone to high wildfire risk and WUI communities including the mountainous areas which contain a mix of private, public and wilderness areas. Important economic values in Lincoln County are year-round recreational resort facilities, tourism, historical communities and buildings, site seeing, and retirement communities. Ecological values include such things as watersheds, wildlife and aquatic habitats, rangeland grazing, forest products, and view sheds. The Bonito and other watersheds are water sources for communities inside and outside of the county. Important infrastructure includes such things as U.S. Highways (54, 70, 285, and 380), county roads, a railroad, communication towers, communities, watersheds, ski area, and historical communities. Vegetation and fuels in Lincoln County vary widely and are largely dependent on elevation. Grasslands and desert scrub exist at lower elevations, pinon juniper woodlands and pine forests exist at mid elevations and mixed conifer forests exist at high elevation. Lincoln County was first settled by Europeans in the late 1800's with residents engaging in ranching and agriculture. The mountainous areas around

Ruidoso area became a tourist destination in the early 1900's and Ruidoso continues to be one of the most visited areas in the state of New Mexico.

The present population of 20,497 represents a growth rate of 5.6% from the 2000 census. The county's three largest municipalities Ruidoso, Ruidoso Downs, and Capitan, have a full time population of 8,005, 2,739, and 1,470 respectively. The majority of the population lives in the high elevation portions of the county, in and around Ruidoso. The Greater Ruidoso area is a popular tourist destination and during summer weekends the population can swell to 40,000 people. The population as a whole is growing slowly, with an influx of retirees and transplants from out of the area, and while development slowed after the 2008 real estate crash, development continues. The majority of the building occurs around Ruidoso and Alto.

There are multiple definitions of the Wildland Urban Interface (WUI). Per the National Fire Protection Agency, the WUI is "a set of conditions that can exist in any community, determined by the combustibility of structures and their proximity to vegetation and other structures, the type and distribution of vegetation, climate and weather patterns, fire history, topography and other landscape features, access, and more."

The Ready, Set Go Program defines it as: "areas where homes are built near or among lands prone to wildland fire."

The University of Wisconsin SILVIS lab further defines the WUI: "WUI is composed of both interface and intermix communities. In both interface and intermix communities, housing must meet or exceed a minimum density of one structure per 40 acres (16 ha). Intermix communities are places where housing and vegetation intermingle. In intermix, wildland vegetation is continuous, more than 50 percent vegetation, in areas with more than 1 house per 16 ha. Interface communities are areas with housing in the vicinity of contiguous vegetation. Interface areas have more than 1 house per 40 acres, have less than 50 percent vegetation, and are within 1.5 mi of an area (made up of one or more contiguous Census blocks) over 1,325 acres (500 ha) that is more than 75 percent vegetated. The minimum size limit ensures that areas surrounding small urban parks are not classified as interface WUI."

Federal Register/Vo l. 66, No. 3/Thursday, January 4, 2001/Notices; and "Fire in the West, The Wildland/Urban Interface Fire Problem", in the "A Report for the Western States Fire Managers", September 18, 2000: "The Urban Wildland Interface community exists where humans and their development meet or intermix with wildland fuel."

10-Year Comprehensive Strategy Implementation Plan: "the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel."

The Southwest Forest Alliance defines it as: "areas where urban fuels directly meet forest fuels. This is primarily within 20-60 meters of houses, where fire most directly threatens the house, and where a defensible zone can be developed."

All of the definitions target the areas where people intermingle with the forest. It is ultimately up to the communities where WUI areas exist to decide what the final definition is. Lincoln County has a large amount of WUI within its borders but how to define it is up to debate. The County has explored several WUI definitions and has had extensive discussions about how to define our Wildland Urban Interface. The Lincoln National Forest surrounds several communities, and numerous private holdings, and recently defined the entire ranger district as WUI with the exception of the White Mountain and Capitan Wilderness Areas. In addition to recreation, and hunting, much of the forest is leased to grazing permit holders, and management of these lands directly affects the livelihood of county residents.

The CWPP core team decided that the WUI is composed of both interface and intermix communities, and is defined as a group of areas where human habitation and development meet or intermix with wildland fuels. Interface areas include housing developments that meet or are within 1.5 miles of continuous vegetation. Intermix areas are those where structures are scattered throughout a wildland area. Depending on the surrounding fuel conditions, topography, and present structures, wildland areas of up to 1.5 miles from structures may be included in the WUI. Also included, but not limited to, are important community water sources and other infrastructures such as electronic sites, mountain top repeaters, towers, pipelines, cultural resources, reservoirs, dams, treatment plants, bridges, roads, lift stations, hospitals, and other critical infrastructures.

WUI areas will be expanded in areas of greater risk and will be based on community and Core Team input. The WUI creates an environment in which fire can move readily between structural and vegetative fuels, increasing the potential for wildfire ignitions and the corresponding potential loss of life, livelihood, and property.

5. Fire History & Regime

The fire regimes in Lincoln County are largely dependent on forest type. Before human settlement, Pinon Juniper woodlands and mixed conifer forests experienced infrequent high intensity stand replacing fires, while Ponderosa Pine forests experienced more frequent lower intensity fires. Fires have been suppressed for about 100 years, since communities in this area have had the capacity to do so. Human efforts combined with climactic conditions have altered fire regimes and fuel conditions. The county has recently experienced several large wildfires costing millions of dollars in property damage and suppression costs.

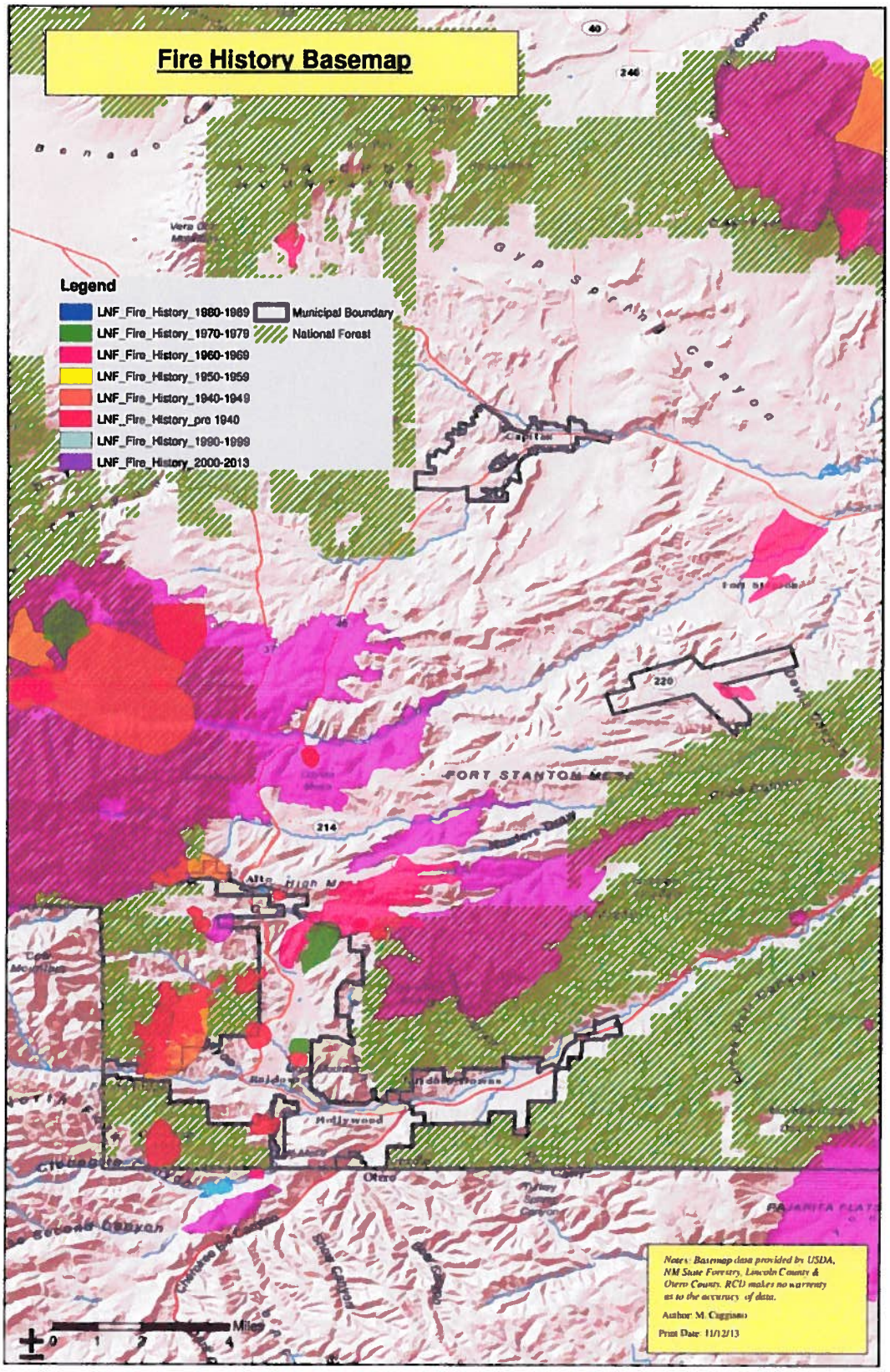
In June of 2012, the Little Bear Fire burned approximately 35,300 acres of National Forest System (NFS) Lands on the Smokey Bear Ranger District of the Lincoln National Forest, with a

total burn area of 44,330 acres. The fire started in the White Mountain Wilderness and ran north east across six watersheds, including the Rio Bonito, in the mountains directly adjacent to Ruidoso, Alto, and Angus, New Mexico. The burn severity was high to moderate throughout 53% of the fire. There was extensive loss of property with over 240 structures lost.

Fire intensity and size have been increasing due to the increase of fuels, tree density, large areas of continuous fuels and a dry weather cycle. Wildfires have occurred in almost every vegetation type within the county, including grasslands, pinon juniper forests, ponderosa pine forests, and mixed conifer forests. Fires have been started by both human and natural causes close to homes and roads, as well as isolated undeveloped areas. Most wildfires have been suppressed while still small, but several have grown into large fires. The table below lists the large wildfires (>1,000 acres) that Lincoln County has experienced since the year 2000. The attached map shows these fires and additional fires the county has experienced in the last 50 years.

Lincoln County Large Fire History – Since 2000

Name	Date	Size (acres)	Structures lost
Cree	May, 2000	6,500	3
Kokopelli	March, 2002	1,000	29
Peppin	June 2004	64,000	unknown
Donaldson	June, 2011	101,563	1
White	April, 2011	10,000	5
Little Bear	June, 2012	44,330	250


Fire History Basemap
Legend
LNF_Fire_History_1980-1989
LNF_Fire_History_1970-1979
LNF_Fire_History_1960-1969
LNF_Fire_History_1950-1959
LNF_Fire_History_1940-1949
LNF_Fire_History_pre 1940
LNF_Fire_History_1990-1999
LNF_Fire_History_2000-2013
Municipal Boundary
National Forest
Cypress Canyon
FORT STANTON MESA
Hollywood
Otero
Notes: Basemap data provided by USDA, NM State Forestry, Lincoln County & Otero County. RCD makes no warranty as to the accuracy of data.
Author: M. Caggiano
Print Date: 11/12/13
Miles

6. Current Conditions

The majority of Lincoln County is dominated by a high desert, with grasslands, pinon juniper forests, ponderosa pine forests, and dry mixed conifer forests occurring at progressively higher elevations. Currently, forests are too dense with most stands in the County being overstocked, contributing to a high degree of departure from its historic range of variability (land fire dataset).

Lincoln County's wildland urban interface and areas of high fire risk are a mix of pinon juniper, ponderosa pine, and mixed conifer forest types. Limited amounts of riparian forests exist along waterways. Stand densities in untreated forest are higher than historical norms. As of 2014, beetle and insect damage are at epidemic proportions. This combination of insects, disease, drought, and fire caused stress are responsible for significant mortality in some stands/hillsides, and is expected to continue. This mortality increases fire risk while dead trees hold needles, and will contribute to increased fuel loading as dead trees fall to the forest floor. Treated areas (public and private land) have generally fared better then untreated land but are not immune to insects, disease, or drought. Current conditions around communities have improved largely due to thinning efforts, but much work remains to be completed. Vegetation on treated properties quickly grows back underscoring the need for continued maintenance.

7. Desired Conditions

Much of the county has been treated to reduce hazardous fuel. Strategically located public land has been treated by government agencies, and private land has been treated by landowners often with the assistance of government grant programs. The desired conditions around structures include defensible space with a minimum cleared area extending 30 feet from the structure. Additional clearance is desirable if appropriate. A variety of fuel treatment strategies are needed to reach the desired conditions. Treatment types include mechanical removal, mastication, bulldozer pushes, piling, hand work and prescribed burns. All efforts are coordinated with members of the GRA WUI Working Group.

In open areas away from structures, the silvicultural prescriptions that guide fuel treatments are generally designed to improve forest health, reduce fire risk, and improve forest resiliency. Specific objectives vary based on the location of the treatment and jurisdiction, but generally will reduce basal area and increase crown spacing with removal desirable. The Village of Ruidoso has adopted a fuels ordinance which requires defensible space, the removal of ladder fuels, and raking pine needles to reduce the risk of catastrophic wildfire. A copy of the 2013 ordinance is included in the appendix. Treating unincorporated property outside the village is voluntary, and most treatments on private land outside of the village of Ruidoso are implemented with financial and or technical assistance from NM State Forestry. Treatments are focused on implementing defensible space around structures, and improving forest health and reduction of fire risk in and around communities.

USFS treatments take a holistic approach and focus on resiliency. Silvicultural prescriptions incorporate grazing, wildlife management, and utilization objectives. The USFS prescriptions will often incorporate burning during second or third entries and commit staff time and resources for burning operations to further reduce fuel loading. One of the more recent guidelines the USFS uses to guide restoration efforts is "Restoring Composition and Structure in Southwestern Frequent-Fire Forests: A science-based framework for improving ecosystem resiliency". These guidelines can be applied to the forested areas found in Lincoln County.

Prescriptions for fuel treatments are variable and largely based on forest type and specific treatment objectives. Further, prescriptions are site specific, based on access, site index, slope, aspect, and hydrology, proximity to structures, communities, and jurisdiction. For this reason this CWPP update will not provide specific prescriptions for individual treatments.

8. Community Wildfire Hazard Risk Assessment

This CWPP update chose to update the community wildfire hazard risk assessment provided in the Lincoln County 2008 CWPP. Though mitigation efforts have been implemented, the group agreed that the overall risk and contributing factors have not changed significantly enough to warrant a change in overall community risk. The following information was pulled from the previous document with information about Ruidoso, Ruidoso Downs and multiple additional subdivisions added to the assessment list. A map of the risk assessment areas is in the appendix.

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Alpine Village					
(includes Cedar Creek)	Homes	High	High	Gravel Roads	Bonito VFD
	Watershed Quality			Above ground utilities	
	Aesthetics			Heavy fuel loads	
	Air quality			No turn around	
	Soil Quality			No ingress/egress	
	Wildlife Habitat			Combustible porch/decks	
				No fire resistant house construction	
				Defensible space less than 30 ft. around homes	
				No fire hydrants	
				Topography conducive to wildfire	
				Homes are close together	

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Alto					
(Includes Legacy,	Homes	High	High	Non-surfaced, steep roads	Bonito VFD
Outlaw, Bald Eagle	Businesses			Heavy vegetation-fuel loads	Ruidoso and Monjeau fire lookout towers
& Bald Eagle II)	Recreation			Lack of defensible space around structures	Hydrants
	Tourism			Terrain conducive to unfavorable fire behavior	
	Communication towers			Lack of structure sprinkler system	
	Church camp			Utilities above ground	
	Watershed quality				
	Wildlife habitat				
	Aquatic habitat				
	Aesthetics				
	Air quality				
	Soil stability				
Ancho					
	Homes	High	High	Moderate fuel loads	Corona VFD with extended response time
	Wildlife habitat			Defensible space less than 30 feet around structures	Water is an issue
	Rangeland			Terrain conducive to	
				unfavorable fire behavior	
	Aesthetics			Lack of structure sprinkler system	
	Air quality			Utilities above ground	
	Soil stability				
Arabela					
	Homes	Moderate	High	Limited ingress/egress	Arabela VFD
	Wildlife Habitat			Heavy vegetation-fuel loads	
	Aesthetics			Lack of defensible space	
				around structures	
	Air quality			Terrain conducive to	
				unfavorable fire behavior	
	Soil stability			Lack of structure sprinkler system	
				Utilities above ground	

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Capitan					
	Homes	High	Low	Light fuel loads	Capitan VFD
	Businesses				
	Tourism			Electrical utilities above ground	Hydrants
	Agriculture land			Lack of structure sprinkler system	
	Watershed quality				
	Wildlife habitat				
	Aquatic habitat				
	Rangeland				
	Aesthetics				
	Air quality				
	Soil stability				
Carrizozo					
	Homes	High	Low	Light fuel loads	Carrizozo VFD
	Businesses			Electrical utilities above ground	Hydrants
	Tourism			Lack of structure sprinkler system	
	Agriculture land				
	Railroad				
	Watershed quality				
	Wildlife habitat				
	Rangeland				
	Aesthetics				
	Air quality				
	Soil stability				

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Copper Ridge					
	Homes	High	High	Gated Community	Bonito VFD
	Watershed quality			One way in/one way out	
	Wildlife Habitat			Paved Roads	
	Aesthetics			Heavy flashy Fuels	
	Air quality			Underground Utilities	
	Soil stability			Good turn around for trucks	
				Good fire resistant building materials	
				No fire hydrants	
				No water storage	
				Topography conducive to active wildfire	
Copper Ridge II					
	Homes	High	High	Paved Roads	Bonito VFD
	Watershed quality			Below ground utilities	
	Aesthetics			One way in/one way out	
	Air quality			No hydrants	
	Soil Quality			Flashy fuel loads	
	Wildlife Habitat			Topography conducive to active wildfire	
				Gated ingress/egress	
				Good turn around for trucks	
Corona					
	Homes	High	Moderate	Medium fuel loads	Corona VFD
	Businesses			Defensible space 30 to 70 feet around structures	Hydrants
	Railroad			Terrain conducive to unfavorable fire behavior	
	Watershed quality			Combustible decks and porches	
	Wildlife habitat			Electrical utilities above ground	
	Rangeland			Lack of structure sprinkler system	
	Aesthetics				
	Air quality				
	Soil stability				

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Enchanted Forest					
	Homes	High	High	Gravel/paved Roads	Bonito VFD
	Watershed quality			No turn around	
	Wildlife Habitat			Severe Fire Potential	
	Aesthetics			No hydrants	
	Air Quality			No sprinklers	
	Soil Stability			Heavy fuel loads	
				Less than 30 feet defensible space around structures	
				Street signs	
Eagle Creek					
	Homes	High	High	Heavy fuel loads behind homes	Bonito VFD
	Watershed quality			Topography conducive to active wildfire	
	Wildlife habitat			No turnarounds	
	Aesthetics			Road signs	
	Air quality			No sprinklers	
	Soil Stability				
Eagle Creek II					
	Homes	High	High	Limited ingress/egress	Bonito VFD
	Watershed quality			No hydrants	
	Wildlife habitat			Paved roads	
	Aesthetics			Heavy fuel loads	
	Air quality			Topography conducive to active wildfire	
	Soil stability			30-70 feet defensible space around homes	
				Above ground utilities	

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Fawn Ridge					
	Homes	High	High	Above ground utilities	Bonito VFD
	Watershed quality			Paved Roads/Gravel Roads	
	Aesthetics			Houses close together	
	Air quality			Defensible space less than 30 ft. next to homes	
	Soil Quality			Moderate ingress/egress	
	Wildlife Habitat			Combustible decks and porches	
				No turn around for trucks	
				Topography conducive to active wildfire	
Fort Stanton					
	Historic buildings	High	Low	Medium vegetation-fuel loads	Fort Stanton VFD
	Hospital			Defensible space 30-70 feet from structures	Hydrants
	Correctional institution			Structures with combustible sidings, porches, and decks	
	Tourism				
	Wildlife habitat				
	Aquatic habitat				
	Aesthetics				
	Air quality				
	Soil stability				
Gavilan Hills					
	Homes	High	High	Gravel roads	Bonito VFD
	Watershed quality			No turn around	
	Aesthetics			Bad ingress/egress	
	Air quality			No fire hydrants	
	Soil Quality			Topography conducive to active wildfire	
	Wildlife habitat			Less than 30 feet defensible space around structures	
				Heavy fuel loads	
				Above ground utilities	
				Combustible decks and porches	
				Combustible house construction	

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Glencoe					
	Homes	High	High	Non-surface road	Glencoe VFD
	Historic buildings			Medium fuel loads	Hydrants
	Businesses			Defensible space less than 25 feet around structures	
	Tourism			Terrain conducive to unfavorable fire behavior	
	Recreation			Combustible decks and porches	
	Major highway			Lack of fixed sprinkler system in structures	
	Watershed quality			Utilities above ground	
	Wildlife habitat				
	Aquatic habitat				
	Rangeland				
	Aesthetics				
	Air quality				
	Soil stability				
Homestead					
	Homes	High	High	Heavy fuel loads	Bonito VFD
	Watershed quality			Below ground utilities	
	Aesthetics			Paved roads	
	Wildlife habitat			Loop Road	
	Air quality			Defensible space less than 30 ft. next to homes	
	Soil Quality			No fire resistant house materials	
				Topography conducive to active wildfire	
				Combustible decks and porches	

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Hondo-Tinnie					
	Homes	High	Moderate	Light fuel loads	Hondo VFD
	Businesses			Defensible space less than 70 feet around structures	Hydrants
	Major highway			Terrain conducive to unfavorable fire behavior	
	Agriculture land			Combustible porches and decks	
	Watershed quality			Lack of fixed sprinkler system in structures	
	Wildlife habitat			Utilities above ground	
	Aquatic habitat				
	Aesthetics				
	Air quality				
	Soil stability				
Lincoln					
	Homes	High	High	Medium fuel loads	Lincoln VFD
	Historic buildings			Defensible space less than 70 feet around structures	Hydrants
	Businesses			Terrain conducive to unfavorable fire behavior	
	Tourism			Closeness of structures can contribute to fire spread	
	Recreation			Lack of structure sprinkler system	
	Agriculture land			Electrical utilities above ground	
	Major highway				
	Watershed quality				
	Wildlife habitat				
	Aquatic habitat				
	Aesthetics				
	Air quality				
	Soil stability				

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Loma Grande					
	Homes	High	High	Heavy fuel load	Nogal VFD
	Watershed Quality			Road sign reflective	
	Wildlife Habitat			30/70 defensible space around structures	
	Aesthetics			Utilities below ground	
	Air Quality			No sprinklers	
	Soil Stability				
Nogal					
	Homes	High	High	Nogal Canyon limited ingress/egress with narrow road	Nogal VFD
	Businesses			Limited fire service access	Hydrants
	Tourism			Moderate to heavy fuel loads	
	Recreation			Lack of defensible space around structures	
	Watershed quality			Combustible structure siding, porches, and decks	
	Wildlife habitat			Terrain conducive to unfavorable fire behavior	
	Aquatic habitat			Utilities above ground	
	Aesthetics				
	Air quality				
	Soil stability				
Outlaw					
	Homes	High	High	Moderate ingress/egress	Bonito VFD
	Golf Course			Power under ground	
	Watershed quality			Fire Hydrant	
	Aesthetics			Topography conducive to wildfire	
	Air quality			Moderate/heavy fuel loads	
	Soil quality			Defensible space 30/70 feet around homes	
	Wildlife habitat			Homes are generally constructed from fire resistant materials	
				No sprinkler systems	

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Rainmakers					
	Homes	High	Moderate	Paved Roads	Bonito VFD
	Golf Course			Fire Hydrants	
	Watershed quality			Turn arounds	
	Aesthetics			Underground utilities	
	Air quality			Good ingress/egress	
	Soil Quality			Moderate/heavy fuel loads	
	Wildlife habitat			Fire resistant home construction	
Ranches of Ruidoso					
	Homes	High	Moderate	Light Fuel Loads	Bonito VFD
	Watershed Quality			Limited ingress/egress	Hydrants
	Wildlife Habitat			Road sign reflective	
	Aesthetics			30/70 defensible space around structures	
	Air Quality			Utilities below ground	
	Soil Stability			No sprinklers	
Ranches of Sonterra					
(includes	Homes	High	High	Paved Roads	
Little Creek)	Watershed Quality			Turn arounds farther than 300 feet	
	Aesthetic			No Fire Hydrants	
	Air Quality			One way in/one way out	
	Soil Quality			Topography conducive for wildfire	
	Wildlife Habitat			Heavy Fuel Loads	
				Utilities Above Ground	

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Ruidoso					
	Homes	High	High	Heavy Vegetation fuel loads	Ruidoso Fire Department
	Businesses			Defensible space less than 30 feet around structures	Hydrants
	Tourism			Terrain conducive to unfavorable fire behavior	
	Historic buildings			Lack of structure sprinkler system	
	Recreation			Utilities above ground	
	Watershed quality			Limited ingress/egress	
	Aquatic habitat				
	Aesthetics				
	Air quality				
	Soil stability				
Ruidoso Downs					
	Homes	High	High	Heavy Vegetation fuel loads	Ruidoso Downs Fire Department
	Businesses			Defensible space less than 30 feet around structures	Hydrants
	Tourism			Terrain conducive to unfavorable fire behavior	
	Historic buildings			Lack of structure sprinkler system	
	Recreation			Utilities above ground	
	Watershed quality				
	Aquatic Habitat				
	Aesthetics				
	Air quality				
	Soil stability				

Community	Assets at Risk	Wildfire Risk of Occurrence	NFPA 1144 Hazard Rating	Contributing Factors to NFPA 1144 Ratings	Firefighting Capacity
Sun Valley (Includes					
Sierra Vista,	Homes	High	High	Gravel/paved roads	Bonito VFD
La Junta,	Watershed quality			No turn around	
Fox Run)	Wildlife habitat			Severe fire potential	
	Aesthetics			No hydrants	
	Air Quality			Utilities above ground	
	Soil Stability			No sprinklers	
				Heavy fuel loads	
				Less than 30/70 feet defensible space around structures	
				Street signs	
White Oaks					
	Homes	High	High	Medium fuel loads	Hydrants
	Historic buildings			Defensible space less than 25 feet around structures	
	Businesses			Terrain conducive to unfavorable fire behavior	
	Tourism			Closeness of structures can contribute to fire spread	
	Recreation			Combustible sidings, porches, and decks	
	Railroad			Structures lack fixed sprinkler system	
	Watershed quality			Utilities above ground	
	Wildlife habitat				
	Rangeland				
	Aesthetics				
	Air quality				
	Soil stability				

9. Community Accomplishments & Wildfire Mitigation Efforts

The stakeholders in Lincoln County have been working with one another for over 10 years. Over this time, great strides have been made in reducing the wildfire risk around the community. Ruidoso became a Firewise community in 2001 and surrounding subdivisions and communities are currently implementing similar strategies. The Sierra Blanca Wildfire Training Academy has been training local and regional firefighters and provides a variety of NWCG classes for municipal, volunteer, state and federal agency firefighters. The Greater Ruidoso Area working

group provides a forum for agency representatives to plan and develop new projects. Local fire departments are implementing interagency cooperative burns.

Various entities in Lincoln County have conducted hazardous fuel reduction projects and have treated over 32,000 since 2008. Treatments have occurred on National forest System lands, BLM lands, State trust lands, Municipal lands, and private property.

A. Local Fire Suppression Resources

Lincoln County has multiple land management agencies and fire departments that respond to emergency incidents. Incidents are managed by different agencies depending on the jurisdiction. If additional resources are needed for a wildfire resources from multiple agencies are called in for assistance. Under certain circumstances joint command or incident management teams are used to manage wildfire incidents. Large incidents will require more resources, but the local resources listed below can respond quickly to wildfires in Lincoln County.

Local Fire Resources

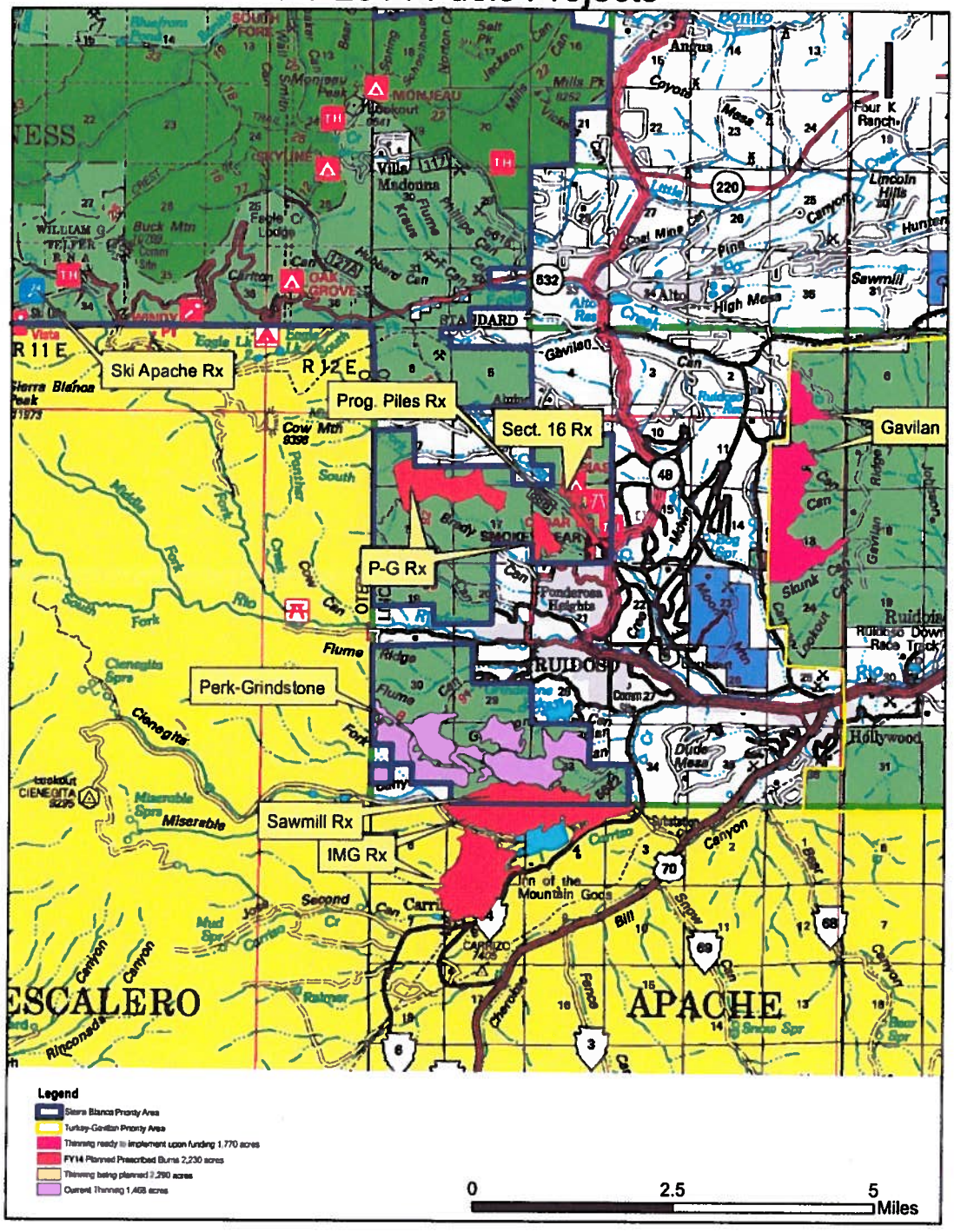
Fire District	firefighters	Vehicle type				
		6x6	*brush truck*	*water tender*	*engine*	*total*
Arabela	21	1	1	1	1	4
Bonito	31	1				5
Glencoe	23					10
Lincoln	18					7
Nogal	16					5
White Oaks	18					9
Hondo	17					9
Copper ridge	3					4
Capitan	20		3	1	3	8
Carrizozo						
Lincoln National Forest	15				3	3
BIA						
Ruidoso Downs	10					7
Ruidoso	18					9

B. Interagency Fuels Treatment Basemap

The agencies participating in the Greater Ruidoso Area Working group have been using the group as a forum to plan and design projects. Working on adjacent land across jurisdictional boundaries has greater impacts on reducing landscape scale fire risk then smaller disjointed projects. The agencies (USFS, VOR, State Forestry, BLM, Mescalero BIA, have shared their fuel treatment data with one another and have submitted GIS files to be aggregated into an interagency fuels treatment GIS database on a yearly basis. The Community fuels treatment

basemap shows land jurisdictions and where fuel treatments and fires have occurred. This map is updated and is used as a planning tool to help track accomplishments, identify areas of concern, and help plan future projects. These maps are used internally, during interagency coordination efforts, and during public meetings so agencies and the public can see where work has been done and where additional work needs to occur.

Lincoln National Forest
Smokey Bear Ranger District
FY 2014 Fuels Projects



C. GRA WUI Working Group

The Greater Ruidoso area WUI Working Group was formed in 2001 and brings together local state, and federal agencies in Lincoln County. The group meets bi-monthly and meetings are open to the public. Current efforts and initiatives are discussed and the group represents the collaborative effort for fuels planning in the County. Agency representatives use the group to report on current projects and plan future projects. By making others aware of agency efforts, initiatives, and opportunities the group increases the scale of local mitigation. The working group has an assessment and outreach subcommittee that reviews completed projects and helps coordinate public outreach events respectively.

D. Grants

Mitigating wildfire risk in the community is a large and often expensive undertaking. The area uses state and federal grants to acquire financial and technical assistance in order to implement a variety of projects. Funding comes from a variety of sources and often has different requirements depending on the specific opportunity and funding agency. In addition to agency funding, members of the GRA WUI working group continue to seek out sources for additional funding and work collaboratively on applications. The table below identifies some of the grants the community has utilized to mitigate wildfire risk across the landscape.

Grant Name	Funding Agency	Applicant	Frequency	Approx Funding
WUI Cost share	Western Governors Association	County/ SWCD/ VOR	Yearly	$250,000
Non Federal land	USFS Regional/ State Forestry	County/ SWCD/ VOR	Yearly	$250,000
RAC	USFS	SCM RC&D	One Time	$72,000
Collaborative Forest Restoration Program	USFS Regional/ State Forestry	SCM RC&D	3 Year	$350,000
CWPP update	NMAC	SCM RC&D	1 Year	$15,000
Wildfire Outreach	NMAC	SCM RC&D	1 Year	$14,000

E. Sierra Blanca Wildland Fire Training Academy

The Sierra Blanca Wildland Fire Academy is a collaborative effort between local fire managers and has been training regional firefighters since 2001. The academy was set up to provide a low cost option to train firefighters. Structure firefighters can cross train in wildland fire, and volunteer departments can receive NWCG training opportunities without having to travel far. The academy is organized locally by members of the USFS, municipal, and county fire departments and helps to make sure firefighters receive the proper training. This interagency collaboration during training also improves coordination during wildfire incidents.

F. Slash Disposal

Slash disposal is often the most expensive part of reducing the fuel load on a piece of ground. The community has been developing small scale utilization and some of the removed material has found its way to local sawmills, bear carvers, fuel wooders, and composters, however the current market for biomass cannot support the supply creating a bottle neck and expense for county and village residents. This disconnect means slash disposal is often expensive, which has resulted in higher costs for mitigation efforts, less material being removed from treatment areas, and in some cases, illegal dumping. Village of Ruidoso residents have a grapple truck service for curbside pickup which has increased the ease of mitigating fire risk. There is limited slash pick up in the County. Most residents must dispose of the material themselves or hire a contractor which has its own set of difficulties. Members of the working group are working on producing pile burning guidelines for the public to safely burn slash as an additional option for disposal. Various entities are also looking at the option of purchasing an Air Curtain Incinerator for use throughout the county.

G. Sustainable forestry funding

The wildfire problem the area faces is only going to get worse as our communities grow and the fuel loads in our forests increase. Mitigation efforts are targeted and can protect communities and infrastructure but as a whole the problem continues to get worse. Most mitigation funding comes from the federal government and as a result funding levels are uncertain from year to year and based on national economic conditions. Several communities across the western United States with similar wildfire hazard issues have recently looked to more local, consistent, and sustainable funding options to secure the money required to address the wildfire problem. Santa Fe has implemented a fee on resident's water bills which goes to reduce fuel load in the watershed. Flagstaff passed a long term bond to secure millions of dollars in funding. Assessing a fee locally, while unpopular, may work for Lincoln County and would provide increased and more certain funding for mitigation efforts. This certainty of future funding would encourage private investment, and utilization and should reduce the cost of these efforts. A sales tax charge may be the best sources for funding in Lincoln County because the burden is largely carried by tourists who spend money during visits.

H. Education & Outreach

Lincoln County, land management agencies, community groups, and the local university cooperate with one another on education and outreach through the Greater Ruidoso Working group and its outreach committee. This is a coordinated approach to educate residents and visitors about forest health and wildfire risk. The outreach plan involves several methods to reach the widest audience possible and includes, living in the WUI speaker series, student art contests, defensible space volunteer days, radio spots, news articles and opinion pieces,

community workshops, and displays and presentations at community events such as the home and garden, motorcycle, and gun shows. The components of the outreach plan are flexible as members of the working group take advantage of outreach opportunities as they arise. Successful events are repeated, and new opportunities are explored. The outreach and community education efforts pull from national resources, including Firewise, Ready Set Go, and other local resource specialists. Outreach promotes a variety of wildfire risk related topics, including defensible space concepts, what to do in an emergency, forest health, insect epidemics, drought and watersheds, prescribed fire use, and utilization and disposal of cut material. The efforts and contributions from multiple agencies and stakeholders form a coordinated and well-rounded approach and will continue outreach activities with oversight from the GRA working group.

I. Incident Management Team

Following the Little Bear Fire in June of 2012, Lincoln County saw the need to develop and put in place their own Incident Management Team structure. Most communities are not familiar with the Incident Command system, and when a disaster strikes, they are unprepared for what must happen immediately. After the Little Bear Fire, the county decided to be proactive and developed their own Incident Management Team to address any future disasters. They assigned team members and scheduled trainings to better prepare for any future incidents.

10. Community Priorities

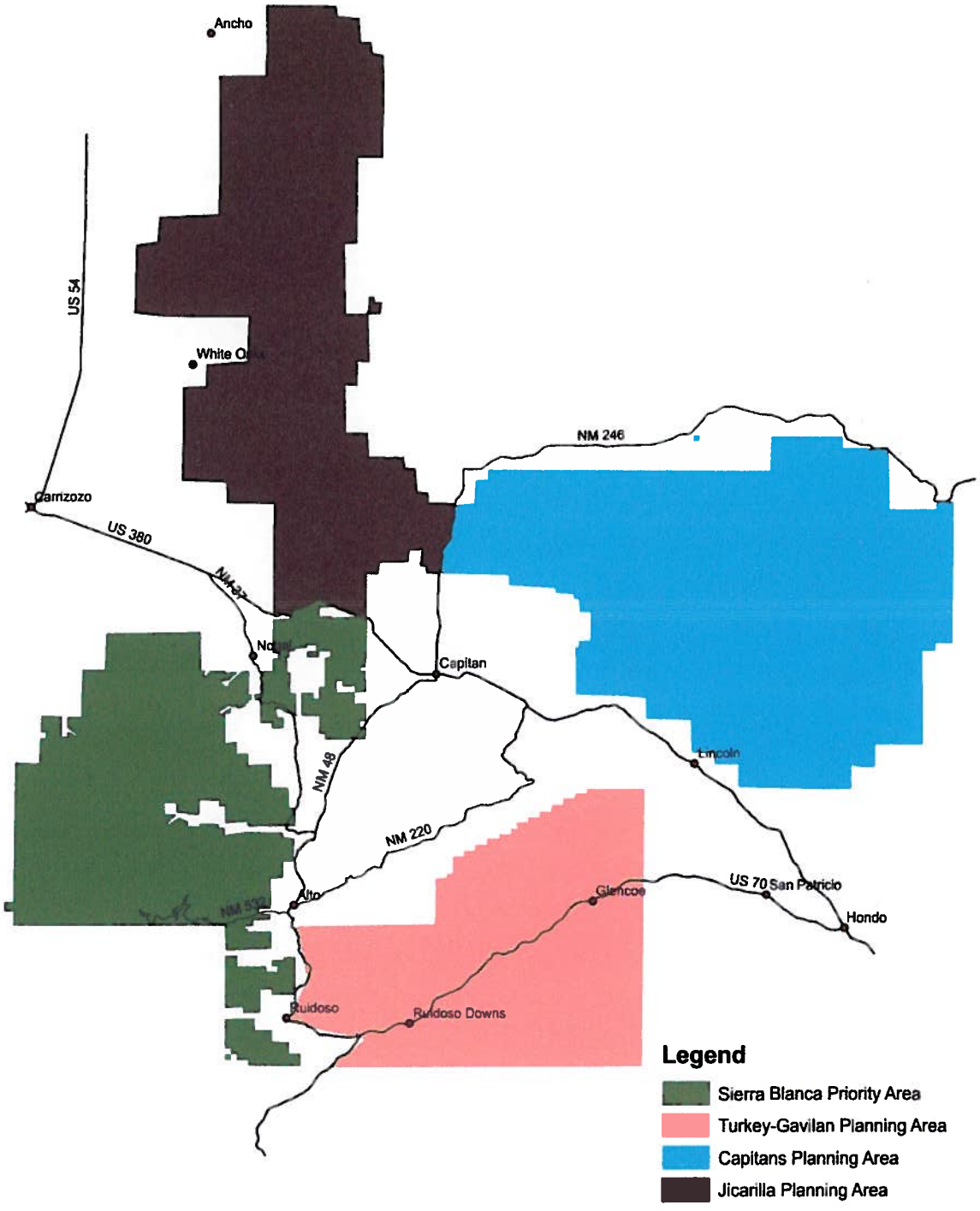
The Village of Ruidoso, Lincoln County, NM State forestry, the USFS, the BLM, and private individuals have been implementing fuel reduction projects for over a decade but the risk is inherent. Despite these treatments the county continues to experience large wildfires. Areas close to homes and communities, and areas within critical watersheds are especially important to protect. While the dominant fire spread direction comes from the southwest there is much variation, and several of the large fires have had fire heads which have moved south and or west. Members of the GRAWUI working group and representatives from land management agencies met in November of 2013 to discuss the local fuel treatment priorities. While every piece of ground is important and could potentially burn, priority areas have been selected by the core team and include;

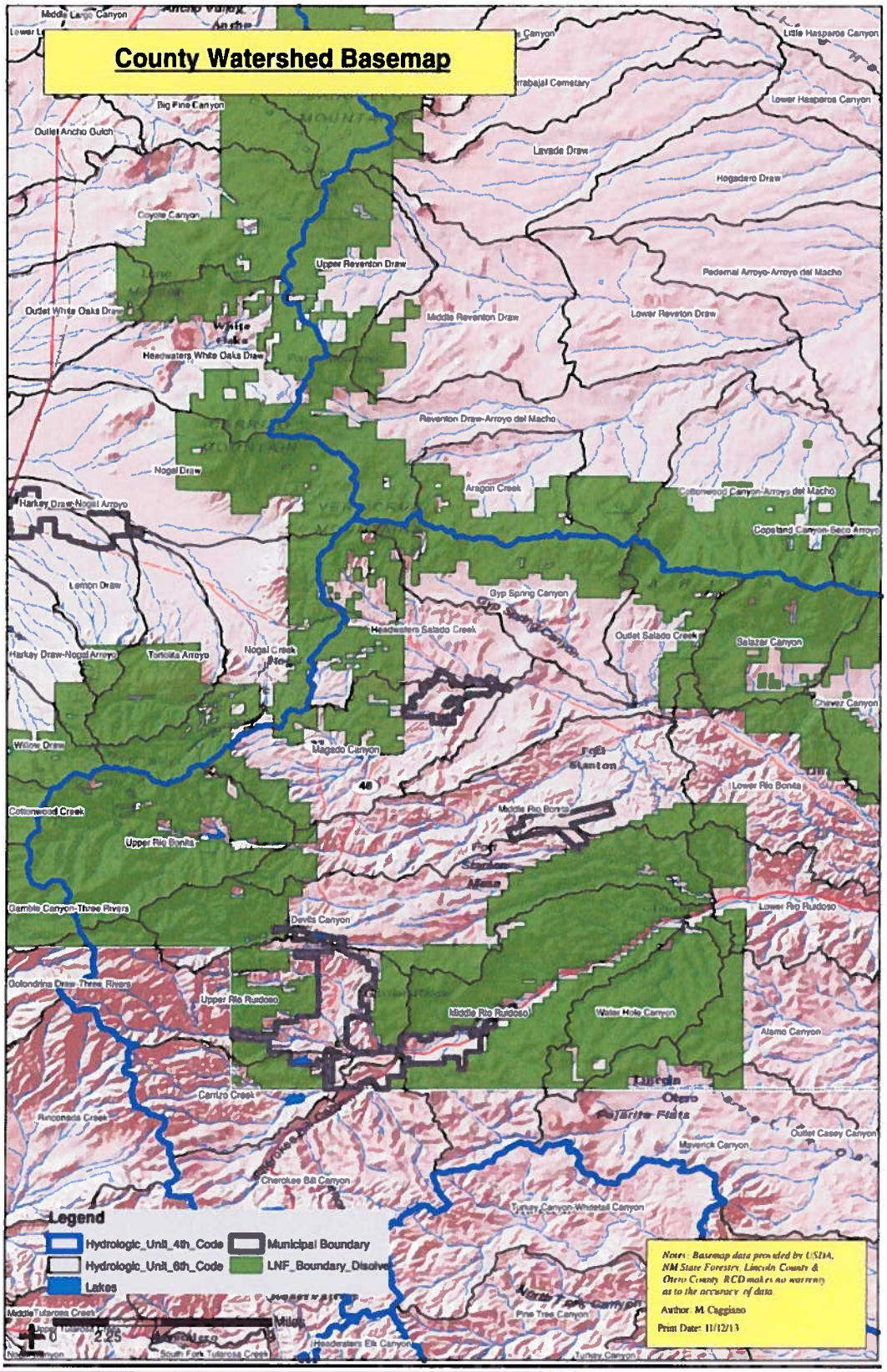
A. Set of conditions used to establish priorities

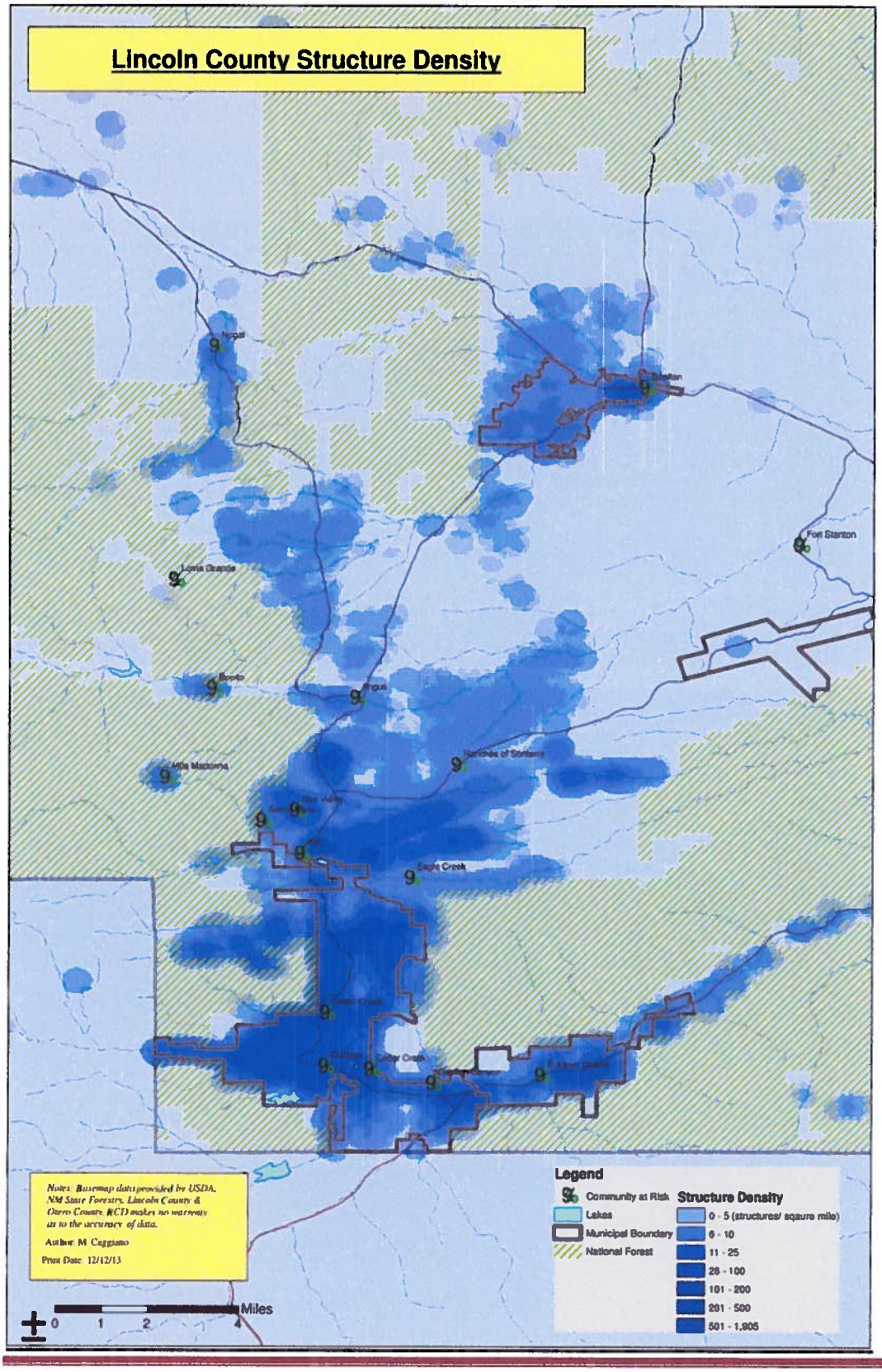
- Incorporated and unincorporated communities in the county: Some communities have been identified by New Mexico State Forestry as Communities at Risk, although additional communities and subdivisions exist. Treatments should focus on the south and west sides of communities, although treatments on the north and east side are also priorities.
- Areas identified in the USFS 5 year plan including Perk, Grindstone, Eagle Creek, Turkey, and Gavilan which are WUI NEPA cleared planning areas .
- Tribal land South and West of Ruidoso.

- Large private properties (greater than 10 acres).
- Remaining implementation zones within the Village of Ruidoso (untreated property on the east side).
- Current or planned USFS and State Forestry projects near Ruidoso, Capitan, White Oaks, Alto, and Highway 70 corridor.
- Areas identified by Lincoln County Hazard Mitigation Grant.
- Areas of untreated land adjacent to previous treatments.
- Areas within and adjacent to highways, roads, evacuation routes, and utility right of ways.
- Untreated State Trust land with environmental clearance.
- Areas deemed as strategic locations to protect infrastructure and values at risk including; utilities, wells, schools, radio towers, wildlife habitat, and areas of commercial value.
- Maintenance of areas that have previously been treated to reduce hazardous fuels.
- Impaired and or critical watersheds.
- Highly populated areas.

Smokey Bear District
Landscape Scale Planning Areas




County Watershed Basemap
Middle Largo Canyon
Little Hasparos Canyon
Lower Hasparos Canyon
Big Pine Canyon
Outlet Ancho Gulch
Llavade Draw
Hogadero Draw
Coyote Canyon
Upper Reventon Draw
Federal Arroyo-Arroyo del Macho
Outlet White Oaks Draw
Middle Reventon Draw
Lower Reventon Draw
White Lake
Headwaters White Oaks Draw
Reventon Draw-Arroyo del Macho
Nogal Draw
Aragon Creek
Harkey Draw-Nogal Arroyo
Cottonwood Canyon-Arroyo del Macho
Copeland Canyon-Seco Arroyo
Lemon Draw
Gyp Spring Canyon
Headwaters Salado Creek
Outlet Salado Creek
Salazar Canyon
Harkey Draw-Nogal Arroyo
Tortolita Arroyo
Nogal Creek
Chavez Canyon
Willow Draw
Magado Canyon
Fort Stanton
Lower Rio Bonita
Middle Rio Bonita
Cottonwood Creek
Upper Rio Bonita
Stanton Mesa
Gamble Canyon-Three Rivers
Lower Rio Ruidoso
Devils Canyon
Colondrina Draw-Three Rivers
Upper Rio Ruidoso
Middle Rio Ruidoso
Water Hole Canyon
Alamo Canyon
Lincoln
Otero
Fairview Flats
Centro Creek
Rinconada Creek
Outlet Casey Canyon
Maverick Canyon
Cherokee Bill Canyon
Turkey Canyon-Whitetail Canyon
Legend
Hydrologic_Unit_4th_Code
Hydrologic_Unit_6th_Code
Lakes
Municipal Boundary
LNF_Boundary_Dissolve
Miles
0
2.25
Middle Tularosa Creek
South Fork Tularosa Creek
Headwaters Elk Canyon
Pine Tree Canyon
Turkey Canyon
Notes: Basemap data provided by USDA, NM State Forestry, Lincoln County & Otero County. RCD makes no warranty as to the accuracy of data.
Author: M Caggiano
Print Date: 11/12/13


Lincoln County Structure Density
Nogal
Capitan
Fort Stanton
Lewis Grande
Bonito
Angus
Ruidoso
Ruidoso Downs
Alto
Eagle Creek
Notes: Basemap data provided by USDA, NM State Forestry, Lincoln County & Otero County. RCD makes no warranty as to the accuracy of data.
Author: M Caggiano
Print Date: 12/12/13
Miles
0
1
2
4
Legend
Community at Risk
Lakes
Municipal Boundary
National Forest
Structure Density
0 - 5 (structures/ sqaure mile)
6 - 10
11 - 25
26 - 100
101 - 200
201 - 500
501 - 1,905

11. Community Involvement

Each of the communities in Lincoln County will be encouraged to develop their own specific mitigation plans. As development continues, local planning and zoning committees will encourage developers to provide subdivision specific CWPPs as part of their planning process.

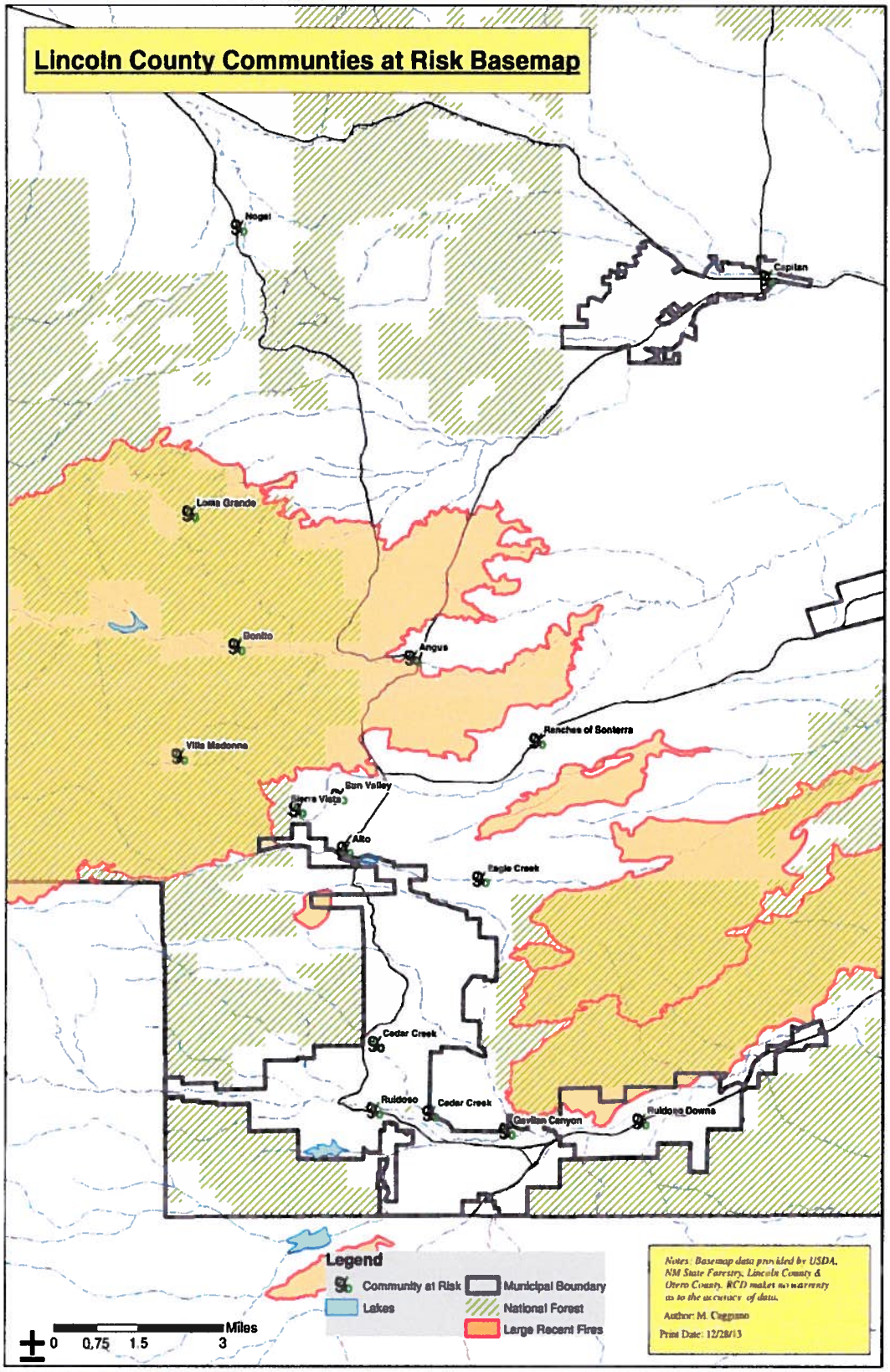
As part of the CWPP process, we developed a survey to assess the needs of Lincoln County residents – both real and perceived. We reached out to people at events like the Lincoln County Home & Garden Show. Respondents could fill out the survey there, or go to SurveyMonkey.com and answer the questions on line. A copy of survey is included in the appendix.

The survey results showed that area residents feel that their properties are prepared for a wildfire, but they are very concerned about the surrounding properties. With 75% of the residents in the area being out-of-town, there is a serious problem with absentee owners not taking responsibility for the overgrown condition of their properties. This presents a real problem for year 'round residents.

Engaging interested parties is critical in the CWPP process because substantive input from the public will ensure that the final document reflects the highest priorities of the local community. A key element in the CWPP process is the meaningful discussion generated among community members regarding their priorities for local fire protection and forest management.(SAF2004)

The public involvement process involved two public meeting held at the Ruidoso convention center where a booth was set up to engage the public in discussion of the CWPP. These meeting were followed by a 45 day survey taken by the South Central Mountain RC&D. Meetings were held at different community Fire Stations. Public comments addressed included:

- A need for increase water supply and water storage
- Clean up by individual property owners
- Improvement of ingress and egress in sub-divisions
- Better firefighting equipment
- All wildfires extinguished immediately
- More funding for tree thinning
- Funding for Firewise programs
- Fuel treatment on public lands
- More active participation and coordination with Federal agencies, especially USFS
- Utilization of bio-mass
- Home fire hazard assessment
- Education on forest health and what can be done
- Yard waste disposal


Lincoln County Communties at Risk Basemap
Nogal
Capitan
Loma Grande
Bonito
Angus
Villa Madonna
Ranches of Sonterra
Sun Valley
Sierra Vista
Alto
Eagle Creek
Cedar Creek
Ruidoso
Cedar Creek
Carrizo Canyon
Ruidoso Downs
Legend
Community at Risk
Municipal Boundary
Lakes
National Forest
Large Recent Fires
Miles
0 0.75 1.5 3
Notes: Basemap data provided by USDA, NM State Forestry, Lincoln County & Otero County. RCD makes no warranty as to the accuracy of data.
Author: M. Cagnano
Print Date: 12/28/13

12. Structural Ignitability

Structural ignition during wildfire incidents leads to the loss of structures including residential homes, and commercial buildings. The concept of the home ignition zone, which includes the home itself and the area immediately surrounding it (approximately 100 feet) are largely responsible for whether or not the home is ignited. Homes are often ignited by the ember wash and not the flame front of the fire itself. Embers and burning debris find their way to pile of dried grass under a deck, or into the attic through a hole in the homes eaves, smolder for up to 24 hours, and then ignite the home. Much research has been conducted to understand the science behind home ignitions, and much can be done to reduce the probability of home ignitions. The national Firewise program, recommends a variety of building materials, techniques and landscaping that can reduce the probability of structural ignition. Additionally, the International Wildland-Urban Interface Code (IWUIC) provides a set of building codes that may reduce structural ignitions from wildfire risk. Neither, Lincoln County or the village of Ruidoso has adopted the IWUIC but do promote voluntary programs like Firewise to reduce the risk of structural ignition. Adapting components of the IWUC would further reduce the likelihood of structural ignitions during wildfire incidents. The CWPP core team recommends the continued promotion of Firewise principals and would support the adoption of IWUIC building codes by the county and its municipalities.

13. Recommendations/Where do we go from here?

The following actions are proposed to reduce wildfire risks and hazards. Project recommendations are based on interviews with county fire chiefs, municipal fire chiefs, federal and state fire management officers, field observations, questionnaire responses, and three public meetings held at community fire stations.

- Encourage the development of defensible space around structures, utilities stations, communication towers and other structures at risk to wildfire.

- Grass and weed abatement needs to occur throughout the county. A common fuel hazard is herbaceous weedy vegetation. Native and non-native weedy grasses and forbs become flashy fuels as they dry in the late summer and fall. Also as the drought persist these conditions also present high fire danger in early spring. These fine fuels ignite easily and burn rapidly. Herbaceous fuels are common and widespread in the WUIs. Herbaceous fuels occur among structures, along roads and driveways, and in fallowed fields and abandoned lots.

- Mowing along highways and roads will create fuel breaks. Highway and roads are linear features that provide a break to fuel continuity. Mowing to a minimum distance of 6 feet along each side of highways and roads will enhance their usefulness as fuel breaks, and reduce the chance of fire ignitions from vehicles or discarded smoking material. All

communities have expressed a high concern of this situation. They would also recommend that a public outreach program addressing this issue be implemented.

- Fuel breaks are recommended along roads for the Alto and Glencoe communities, as appropriate, and along Nogal Canyon Road, and White Oaks Highway. Strategically located fuel breaks are recommended around the communities of Arabela, Corona, Nogal and White Oaks. Strategically positioned fuel breaks also are recommended along public and private land boundaries, which occur in all WUIs. Priority should be given to Arabela, Lincoln, Fort Stanton, Glencoe, Alto, Nogal, White Oaks, Corona and all sub-division identified as high fire danger.

- Community education and public outreach is an effective means to initiate local action to reduce wildfire risks and hazards. Community outreach could occur through each WUI to achieve improved awareness of wildfire issues such as creation of defensible space around structures.

- Training of the County Fire Districts (CFDs) and Municipal Fire Districts (MFDs) is an ongoing need. National Wildfire Coordination Group (NWCG) annual training need to occur. Nearly all fire districts have wildfire fighters trained at the Firefighter 2 level but there is a need for training at the Firefighter 1 and Engine Boss level. Because volunteers firefighters work during the week, training should occur on weekends. The county is fortunate to have the Sierra Blanca Fire Academy to provide needed training.

- High priority for all fire departments is to develop additional water storage for fighting wild fires, fire hydrants, maps, and maintain strategically located water sources throughout each WUI. Dry hydrants, permanent surface water, stock ponds, or irrigation systems may be suitable water sources. Agreements with private landowners need to be negotiated annually for property and water access. Protection of all water sheds was also identified as a priority.

- Improve the communication repeaters throughout the county.

- The fire protection authorities include eight CFDs, three MFDs, the USFS, the NMSFD, and the BLM. All agencies need to collaborate to maintain, and in some cases improve, wildfire fighting equipment, buildings, engines, and firefighting training.

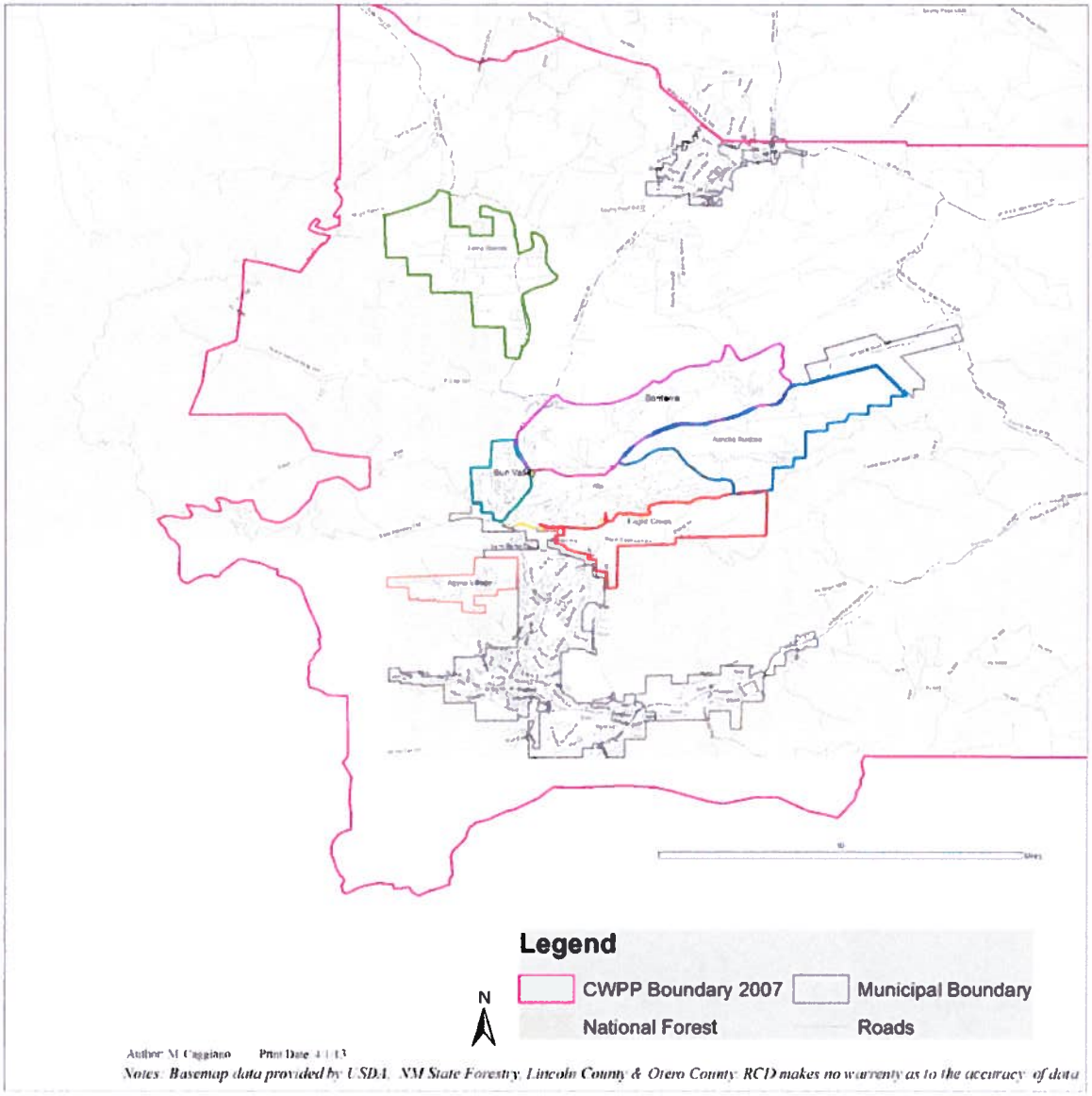
We will continue to target WUI properties in the Urban Interface of Lincoln County as well as larger tracts of land that improve forest and watershed health and better protect communities and homes from the effects of wildfire.

Priorities would include:

- Acres that tie into previously treated acres (whether private, state or federal)
- Acres on the southwest side of communities or homes
- Acres that are downslope of communities or homes
- Acres that protect watersheds and improve forest health

Appendix

Risk Assessment Areas



List of Fire Behavior Terms

Aerial Fuels	All live and dead vegetation in the forest canopy or above surface fuels, including tree branches, twigs, cones, snags, moss, and high brush.
Aspect	Direction a slope faces.
Direct Attack	A method of fire suppression where actions are taken directly along the fire's edge. In a direct attack, burning fuel is treated directly, such as by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.
Chain	A unit of linear measurement equal to 66 feet.
Crown Fire	The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.
Dead Fuels	Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.
Defensible Space	An area either natural or manmade where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss to life, property, or resources. In practice, "defensible space" is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation by building and maintaining fire-safe communities compatible with the natural surroundings.
Firewise	Firewise is a national program to serve as a resource for agencies, tribes, organizations, communities, fire departments, and private landowners who are working on the goal to reduce the loss of lives, property, and resources to wildfire.
Fire Behavior	The manner in which a fire reacts to the influences of fuel, weather, and topography.
Fire Danger	The broad-scale condition of fuels as influenced by environmental factors.
Fire Front	The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified, the fire front is assumed to be the

	leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.
Fire Hazard	The presence of ignitable fuel coupled with the influences of terrain and weather.
Fire Intensity	A general term relating to the heat energy released by a fire.
Fire Return Interval	The historic frequency that fire burns in a particular area or fuel type without human intervention.
Fire Regime	The characterization of fire's role in a particular ecosystem, usually characteristic of a particular vegetation and climatic regime, and typically a combination of fire return interval and fire intensity (i.e., high frequency low intensity/low frequency high intensity).
Fire Weather	Weather conditions that influence fire ignition, behavior, and suppression.
Flame Length	The distance from the base to the tip of the flaming front. Flame length is directly correlated with fire intensity.
Flaming Front	The zone of a moving fire where combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front.
Fuels	Combustible material; includes vegetation such as grass, leaves, ground litter, plants, shrubs, and trees that feed a fire. Not all vegetation is necessarily considered fuel; deciduous vegetation such as aspen actually serve more as a barrier to fire spread, and many shrubs are only available as fuels when they are drought-stressed.
Fuel Break	An area of land where fuel continuity and load is reduced to reduce wildfire rate of spread and severity and to improve control opportunities.
Fuel Loading	The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.
Fuel Model	Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.
Fuel Type	An identifiable association of fuel elements of a distinctive plant

	species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.
Ground Fuel	All combustible materials below the surface litter, including duff, tree or shrub roots, punchy wood, peat, and sawdust that normally support a glowing combustion without flame.
Hazard	Vegetation-fuel attributes that may be conducive to propagate and carry a fire.
Indirect Attack	A method of fire suppression where actions are taken some distance from the active edge of the fire due to intensity, terrain, or other factors that make direct attack difficult or undesirable.
Intensity	The level of heat radiated from the active flaming front of a fire, measured in British thermal units (BTUs) per foot.
Ladder Fuels	Fuels that provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. Ladder fuels help initiate and ensure the continuation of crowning.
Live Fuels	Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.
National Fire Rating System (NFDRS)	A uniform fire danger rating system that focuses on the **Danger** environmental factors that control the moisture content of fuels.
Prescribed Fire	Any fire ignited by management actions under certain predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and National Environmental Policy Act (NEPA) requirements must be met prior to ignition.
Rate of Spread	The relative activity of a fire in extending its horizontal dimensions. It is expressed as a rate of increase of the total perimeter of the fire, rate of forward spread of the fire front, or rate of increase in an area, depending on the intended use of the information. Usually it is expressed in chains or

	acres per hour for a specific period in the fire's history. Sometimes it is expressed as feet per minute; one chain per hour is equal to 1.1 feet per minute.
Risk	The probability that a fire will start from natural or human-caused ignition.
Surface Fuels	Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.
Topography	Referred to as "terrain." The term also refers to parameters of the "lay of the land" that influence fire behavior and spread. Key elements are slope (in percent), aspect (the direction a slope faces), elevation, and specific terrain features such as canyons, saddles, "chimneys," and chutes.
Wildfire	A wildland fire that is unwanted and unplanned.
Wildland Fire	Any fire burning in wildland fuels, including prescribed fire, fire use, and wildfire.
Wildland Fire Use	The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans.

Thinning Standards
Village of Ruidoso Adopted July 9 2013

Sec. 42-80. Fuels management standards:
The intent of these standards is to reduce the potential for a catastrophic crown fire within the Village while preserving the forested appearance of the Village. The goal is to retain a forest environment with a 40 square foot per acre minimum basal area density of mature trees. This translates to forty 14 inch diameter trees per acre. When computing minimum required basal area, trees smaller than 14 inch diameter will be projected to grow to 14 inch diameter.

(a) All properties shall meet the following requirements for each particular Zone. Upon determination by the Village that a property is in compliance, the Village will issue a letter to the property owner. Initial thinning should normally last a period of 10 years before ladder fuels and tree growth are sufficient to require a maintenance thinning. Maintenance activities such as pine needle raking and ladder fuel removal shall be conducted on a yearly basis. However, circumstances such as drought and bark beetle mortality can cause a property to deviate from these standards and become non-compliant. Should a property not be maintained or otherwise become non-compliant, the property owner will be notified to correct the problem and be given a timeframe for coming back into compliance. Should compliance not be obtained in the established timeframe, the property shall be designated non-compliant and the landowner of record will be assessed a fine, increase in billing, or other penalties that are in effect until such time as the property is again in compliance.

(1) *Zone 1 Structure Protection (0 to 10 feet from structure or deck).* This Zone should be devoid of flammable vegetation as much as possible. Trees within this Zone shall be considered a part of the structure and the Zone extended accordingly.

a. Remove all non-decomposing pine needles, flammable ground materials and activity slash. Pine needles are to be raked and placed appropriately for Village removal.
b. Remove all ladder fuels including shrubs beneath the crown of conifers.
c. Separation between crowns is per chart 42-80 #2.
d. Maximum of 5 similar sized trees with overlapping crowns then there must be separation as per chart 42-80 #2.
e. Prune all species at least 15 feet above ground and, if tree height permits, 10 feet above structure eave.
f. Conifers that can't be trimmed to structure eave shall be removed.
g. Removal of any live tree greater than 20 DBH requires a permit.
h. No wood chips allowed except in planting beds.
i. No firewood stored unless covered by approved fire retardant cover.
j. No flammable construction material stored unless covered by fire retardant cover.
k. No standing dead trees allowed.
l. Grass and common weeds shall be trimmed low to ground or eliminated.
m. Planted vegetation shall be fire resistant and low growing.
n. There shall be no low growing flammable vegetation such as juniper (including ornamental juniper).
o. Roofs and gutters shall be kept free of pine needles and other debris.

(2) *Zone 2 Defensible Space (greater than 10 feet up to 200 feet from structure or deck as dictated by slope chart 42-80 #3).* The intent of this zone is to reduce the threat to a structure from an advancing wildfire.

a. Remove all non-decomposing pine needles, flammable ground materials and activity slash within 30 feet of a structure,
b. Remove all ladder fuels including brush beneath crowns.
c. Minimum crowns separation of trees or "clumps" (maximum 5 similar sized trees per clump) as per chart 42-80 #2.
d. Separation of brush species shall be as per chart 42-80 #2.
e. Pine needles and grasses on vacant properties adjacent to residences and within residential areas shall be removed on a yearly basis so as not to provide a continuous fuel source in the event of a wildfire..
f. Prune all species a minimum of 10 feet from ground within 30 feet of structure or one third of tree height, whichever is less. Ornamental conifers such as Blue Spruce may be left untrimmed providing spacing and low ground fuels are maintained to minimize ignition potential.
g. Minimum 10 feet recommended between planting beds.
h. Removal of any live tree greater than 20 inches DBH requires a permit.
i. No wood chips allowed except in planting beds within 30 feet of structure.
j. No firewood stacked within 20 feet of structures unless under approved fire retardant cover. All firewood must comply with the beetle habitat reduction requirements contained in section 54-133(c)(5)c. Firewood must be stacked with no more than two cords per stack.
k. No flammable conifers less than eave height within 20 feet of vents, windows or doors.
l. No standing dead trees within 60 feet of structure

(3) *Zone 3 Forest Woodlands (from the end of Zone 2 to the edge of the property).* This zone includes vacant lots and properties less than 5 acres in size. Where the property is within the defensible space of another property, Zone 2 standards shall apply. This Zone shall maintain an open forested appearance with well-spaced trees and openings. The zone should contain a variety of tree species of various ages. Groups of trees should be of similar ages and heights. Different groups will provide the multiple age structure and size structure.

a. Remove all ladder fuels.
b. Separation shall be as per chart 42-80 #2.
c. Every effort shall be made to remove and utilize bole wood over 6 inches in diameter.

d. Trim all species to 6 feet or 1/3 the height of the tree, whichever is less, measuring from the uphill side of the tree. Insure that shorter tree groups are upwind of taller tree groups (acts as ladder fuel).

e. Except when the property has a fuels management plan approved by the director of forestry, removal of any live tree greater than 20 DBH requires a permit.

f. Mastication and chipping of slash are allowed for slash disposal. Wood depth shall not exceed 2 inches. Bole wood over 6 inches in diameter shall be removed.

g. Where possible all slash shall be removed, masticated or chipped. On steep slopes or where access is limited, alternative fuels management slash treatments may be approved by the director of forestry.

h. Green wood retained for firewood shall be treated for beetle habitat per Sec. 54-133(c)(5)c.

i. Up to three 12 inch DBH or larger non-hazardous standing dead trees may be retained per acre for wildlife habitat. Recent beetle killed trees must be harvested and removed or treated as per Sec. 54-133(c)(5)c.

j. All non-decomposing ground debris greater than 5 inches in diameter shall be removed, except up to 5 downed logs per acre greater than 12 inches in diameter may be retained for wildlife habitat.

(4) *Large tracts (more than 5 acres with or without structures).* A fuels reduction plan shall be prepared and/or approved on a case by case basis by the director of forestry. Where structures are involved they shall be treated as in zones 1 and 2. The zone shall have an open forested appearance. These properties shall be treated with the intent to keep a wildfire on the ground to minimize spotting potential. The goal of treatment is to prevent a stand replacing crown fire. Some untreated areas may remain to meet agreed upon objectives providing there is sufficient treated area surrounding the untreated areas to mitigate crown fire spread.

a. Treated areas of the properties shall have no ladder fuels.

b. Separation of trees shall be as per chart 42-80 #2 as near as possible. Modification of this Separation may be approved by the director of forestry to meet specific objectives.

c. Perimeter thinning shall be of sufficient width to prevent a sustainable crown fire from advancing to an adjacent property.

d. Every effort shall be made to remove and utilize bole wood over 5 inches in diameter. Bole wood not removed shall be felled along the contour or otherwise treated upon direction of the director of forestry.

e. Except when the property has a fuels management plan approved by the director of forestry, removal of any live tree greater than 20 DBH requires a permit.

f. Where possible, slash shall be treated with full removal, mastication or chipping. Lop and scatter may be used as a less desirable alternative.

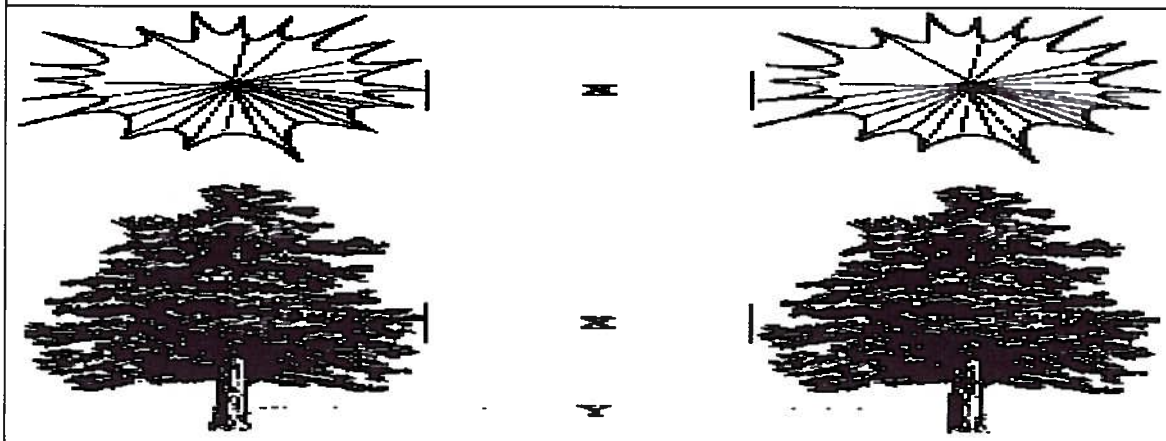
g. If lop and scatter is allowed, slash shall be lopped and scattered to less than 2 feet in depth to accelerate decomposition. Lopped and scattered slash shall not be placed under the drip line of residual trees.

h. No standing dead trees are allowed within 150 feet of the property perimeter.

i. Trees shall be pruned where appropriate to meet objectives but may be left un-pruned if Separation is adequate to prevent fire movement from tree to tree.

j. If a Zone 4 property is used for a commercial purpose, a fuels management plan shall be developed in partnership with the landowner to meet the commercial objectives and manage fuels on the site. The signed plan will be an agreement between the director of forestry and the landowner for the certification period. If the director of forestry and the landowner cannot come to agreement, the matter will be presented to the planning and zoning commission for resolution.

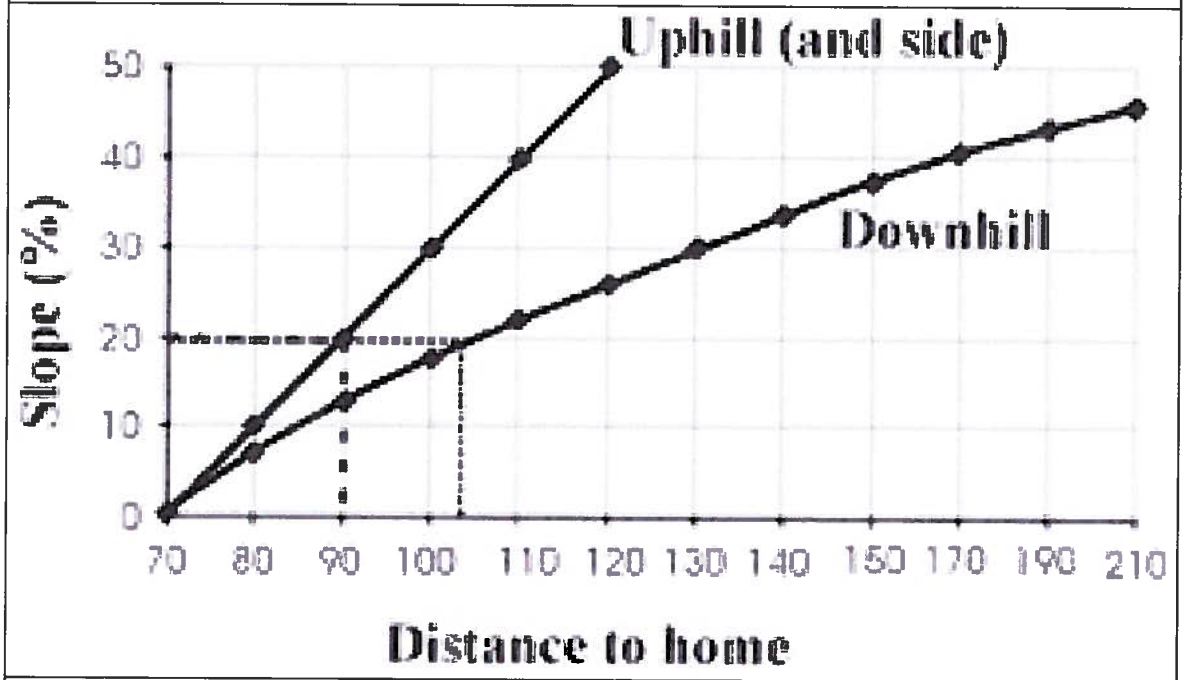
Crown Separation Measurement Diagram Chart 42-80 #1



Measure Crown Separation (X) from the outside of the crown of one tree or clump of trees to the outside of the crown of the next tree.

Minimum Tree Crown and Shrub Clump Separation Chart 42-80 #2			
Percent (%) Slope	Individual Tree Crown Separation	Tree Group Crown Separation	Brush and Shrub Clump Separation in feet
0-10 %	10'	15'	2 1/2 times Shrub Height
11-20%	15'	20'	3 times Shrub Height
21-40%	20'	25'	4 times Shrub Height
40%	30'	35'	6 times Shrub Height

Zone 2 Defensible Space Outer Edge Measurement based on Slope
Chart 42-80 #3



This chart indicates the minimum recommended dimensions for defensible space from the home to the outer edge of Zone 2. For Example: if the home is situated on a twenty (20%) percent slope, the minimum defensible space dimensions would be ninety (90') feet uphill and to the sides of the home and one hundred four (104') feet downhill from the home.

(1) *Property Owners Responsibilities.* Every property owner within the Village limits shall maintain their property in accordance with Section 42-80 of this Code. If a property owner places green waste on the public right-of-way for grapple pick-up, the property owner shall separate the green waste into two categories: 1) 6 inches or greater in diameter; or 2) less than 6 inches in diameter. Any green waste that the property owner places on the public right-of-way for grapple pick-up shall be no greater than 6 feet in length. Any green wood on the property shall be kept in accordance with Section 42-80 of this Code and shall be covered with six ml (minimum thickness) clear/translucent plastic for a minimum of ten months to minimize bark beetle habitat and infestation.

Lincoln County
Community Wildfire Protection Plan
Community Survey

Please complete this survey to provide input on your Community Wildfire Protection Plan . A plan for Lincoln County communities to help prepare for, and mitigate the impact of catastrophic wildfires.

Please send you completed form by April 1st to: South Central Mountain RC&D Cpuncil, 201 Oak Grove Place, Ruidoso NM 88345. You can also access this survey online at : https://www.surveymonkey.com

1. In which community do you live
2. How would you rate your house in terms of risk from Wildfires
   Low
   Medium
   High
3. My home is vulnerable to wildfire because of
   Surrounding fuels on your property- grass,shrubs etc
   Surrounding fuels on neighboring properties
   Building materials
   Lack of water supplies
   Inaccessible area
   Ignition sources from neighboring areas – railroads,highways
4. How prepared is community for a large wildfire
   Poorly prepared Moderately prepared Well prepared
5. Number the following actions (1-5) in their importance to making the community better prepared for wildfires (1 is most important)
   Clean up by individuals property owners
   Better fire-fighting equipment
   Improved water supply
   Fuel treatment on public lands
   Community education
6. My biggest challenge to making my home, fire safe is (check the option that applies the most)
   Time Money Not knowing what to do I think my home is already safe
7. I would be most interested in funding to help me and my community with (check option that applies the most)
   Yard waste disposal
   Home hazard assessment
   Education
   Treatment on private land
   Treatment on public lands

Water supply development

8. Name specific community resources you would like to see protected from wildfire (e.g. a certain hiking trail, a favorite historic building, or certain municipal building)

9. Other comments